

AMENDMENT TO THE CLAIMS

1 (currently Amended) A vaporization system for vaporizing material carried in a gas stream, said system including an outer housing defining a vaporization chamber, a heated surface member in the vaporization chamber, ~~An~~an atomizer having a liquid inlet and a gas flow inlet, said gas inlet and ~~an aerosol outlet~~ providing a gas stream to atomize a liquid flowing through the liquid inlet to form droplets for introduction into the vaporization chamber, a source of gas connected to the gas flow inlet, ~~an orifice forming a gas jet between the inlet and the outlet,~~ and a source of liquid to be atomized connected to the liquid inlet ~~be introduced in the gas jet,~~ at least one of the sources comprising a plurality of different gases or liquids respectively, selectively provided to the atomizer, material in the gas stream being vaporized by heat from the heated surface member.

2. (Currently Amended) The ~~atomizer~~vaporization system of claim 1 wherein the source providing a plurality of different gas or liquid comprises a source of gas connected to the gas flow inlet of the atomizer, and having a plurality of different types of gas introduceable into the inlet.

3. (Currently Amended) The ~~atomizer of~~vaporization system of claim 1 wherein the source comprising a plurality of different gas or liquid material is the source of liquid, and a plurality of different liquids selectively introduceable into the atomizer.

4. (Currently Amended) The ~~atomizer~~vaporization system of claim 1 wherein the atomizer has a plurality of passageways defined therein, the source having a plurality of gas or liquid comprising a plurality of gas sources, and each gas source connected to a separate passageway, and wherein the source of liquid comprises a

plurality of different types of liquid, each source of the different types of liquid being connected to a selected one of the passageways of the atomizer.

5.(Currently Amended) The ~~atomizer~~vaporization system of claim 1 wherein each of the sources has a flow controller between the source and the atomizer.

6.(Currently Amended) The ~~atomizer~~vaporization system of claim 1, wherein both of the sources comprise a plurality of gas or liquid materials from the respective sources.

7.(Previously Presented) A vaporization system for vaporizing materials carried in a gas stream comprising an outer housing defining a vaporization chamber, a heated surface member in the chamber, a first source of at least one gas connected to the chamber, a second source of at least one liquid to be carried in the gas and into the chamber, wherein at least one of the first and second sources comprises a plurality of different materials consisting of one of the respective gas and liquid for introduction into the chamber to be vaporized therein from heat on the heated surface member.

8.(Previously Presented) The vaporization system of claim 7 wherein the first and second sources are connected through an atomizer to the vaporization chamber.

9.(Previously Presented) The vaporization system of claim 7 wherein the vaporization chamber has an inlet, the first and second sources being connected to the inlet in a manner such that the gas from the first source will engage liquid from the second source as the gas moves toward the inlet to the vaporization chamber.

10. (Currently Amended) The vaporization system of claim 7 wherein the vaporization chamber has an inlet ~~is~~ connected to an outlet of an atomizer, said first and second sources being connected to the atomizer to cause atomization of liquid from the second source in a gas from the first source.

11. (Currently Amended) The ~~atomization~~vaporization system of claim 7 including a controller for controlling flow of materials from the first and second sources, and controlling the heat on the heated surface member in the vaporization chamber.

12. (Currently Amended) The vaporization system of claim 10, wherein the vaporization chamber has an outlet, and wherein a ~~chemical vapor deposition process~~ chamber for vapor deposition and film formation is combined with the vaporization chamber, the outlet of the vaporization chamber being connected to an inlet of the ~~chemical vapor deposition process~~ chamber.

13. (Previously Presented) The vaporization system of claim 12, wherein the atomizer comprises a plurality of passageways therethrough, each of the passageways being connected to receive a different gas from the first source, and where each passageway in the atomizer forms a gas jet, and a connection to receive separate liquid from the second source into a flow path subsequent to the formation of the gas jet, and the outlet of the atomizer being connected to the inlet of the chemical vapor deposition chamber.

14. (Previously Presented) The vaporization system of claim 7, wherein each of the first and second sources have a flow controller controlling flow from the respective source to the vaporization chamber.

15. (Previously Presented) The vaporization system of claim 14, wherein there is a separate shut off valve between each flow controller and the vaporization chamber.

16. (Currently Amended) A ~~chemical~~—vapor deposition system comprising a ~~chemical-vapor-deposition process~~ chamber having an inlet, and a source of deposition materials for forming thin films on wafers in the ~~chemical-vapor-deposition process~~ chamber comprising a vaporization chamber connected to the inlet of the ~~chemical-vapor-deposition process~~ chamber, said vaporization chamber having a heated surface portion, and a first source of a gas for introduction into the vaporization chamber through a connecting passageway, said first source having a plurality of different gaseous materials selectively introduced into the passageway to form a flow of gas, and a second source of liquid material forming a source of at least one precursor liquid chemical for deposition in the ~~chemical-vapor-deposition process~~ chamber connected to the passageway in a flow path subsequent introduction of the flow of gas through the passageway, whereby droplets of at least one liquid are mixed with the gas prior to introduction into the vaporization chamber.

17. (Original) The system of claim 16, wherein the inlet to the vaporization chamber is connected to an outlet of an atomizer, the first and second sources being connected to the atomizer such that a plurality of different liquids can be selectively atomized sequentially or simultaneously and introduced into the vaporization chamber.

18. (Original) The system of claim 17, wherein the atomizer has individual atomizer passageways in a single atomizer head, each passageway being connected to one of a plurality of gasses the first source, and one of a plurality of liquids from the second

source.

19. (Withdrawn) A method of providing vaporized liquids to a process chamber comprising the steps of providing a vaporization chamber having a heated surface portion therein, providing at least two separate sources of liquid for introduction into an inlet of the vaporization chamber, selectively controlling the flow of liquid from one or more source to the inlet, and mixing the selected liquid with a carrier gas prior to introduction of the liquid and gas into the vaporization chamber.

20. (Withdrawn) The method of claim 19, including forming a gas jet from the gas, and introducing droplets of liquid into the gas jet to form an aerosol prior to introduction of the liquid into the vaporization chamber.

21. (Withdrawn) The method of claim 20, wherein forming of the gas jet comprises forming the gas jet in an atomizer arrangement, and providing at least two liquids selectively in sequence or simultaneously to the atomizer arrangement for atomization prior to introduction into the vaporization chamber.

22. (Currently Amended) A vaporization~~er~~system for vaporizing material carried in a gas stream, including a vaporization chamber receiving~~fer~~ an aerosol from an atomizer, the aerosol comprising a gas and liquid droplets from first and second respective gas or liquid sources, at least one of the sources comprising a plurality of different individually selectable materials, said vaporization~~er~~chamber including a housing defining the an interior vaporization chamber having an inlet and an outlet, a heated surface member comprising a first metal block having a plurality of passageways therethrough providing heated surfaces, a bore through the first metal block aligned with the inlet, through which the

aerosol is discharged into the vaporization chamber, and an orifice in the first metal block directly aligned with the inlet, said orifice forming an opening leading to the bore in the first metal block, the aerosol droplets being vaporized by the heated surfaces of the metal block.

23.(Currently Amended) The vaporization system~~vaporizer~~ of claim 22, wherein the orifice is no greater in size than substantially the same size as the bore.

24.(Currently Amended) The vaporization system~~vaporizer~~ of claim 23 wherein the aerosol forms a gas jet through the inlet.

25.(Currently Amended) The vaporization system~~vaporizer~~ of claim 24 wherein the orifice comprises a mixing orifice, and the velocity of the gas jet causes a recirculation from an output side of the bore of the first metal block through the plurality of passageways in the first metal block back toward the inlet for mixing with the aerosol as the aerosol passes through the mixing orifice.

26. (Currently Amended) The vaporization system~~vaporizer~~ of claim 22 wherein there is a second metal block in the interior vaporization chamber having a plurality of passageways therethrough, the second metal block being spaced from the first metal block and positioned between the first metal block and the outlet of the vaporizer.

27.(Currently Amended) The vaporization system~~vaporizer~~ of claim 26 wherein the second metal block has an imperforate surface aligned with the bore in the first metal block to divert gas striking the imperforate surface laterally outwardly toward the passageways in the ~~second~~second metal block.

Claims 23-27 all depend from claim 22 and thus are believed in the same invention group.

Again, the provisional election is for claims 7-18, but it is now believed that all of claims 1-18 and 22-27 are in the same invention group.

In regard to the election of Species, the Applicant hereby provisionally elects the Species of FIG. 4, if no generic claim is allowable. The claims readable on the Species of FIG. 4, include claims 1-10, 12, 14-17, and 19-27. It is noted that the Species of FIG. 4 can utilize the vaporization chamber shown in FIG. 7 which is defined in the combination claims 22-27. Thus it is respectfully submitted that these claims will be applicable to the elected Species.

In the Amendment, claim 16 has been amended also to use the word "process chamber" as illustrated in FIG. 4, other amendments have been made for the sake of clarity and antecedent basis.

Again, the provisional election is made to the invention Group II and is now respectfully believed that claims 1-6 and claims 22-27 are in the same group along with claims 7-18, as pointed out above.

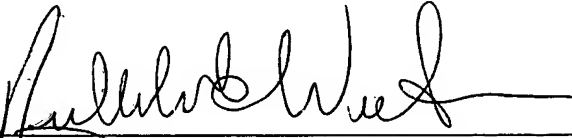
Claims 19, 20 and 21 have been withdrawn.

Favorable action on the claims elected, which now include not only claims 7-18, but also claims 1-6 and claims 22-27, is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to deposit account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: 

Nickolas E. Westman, Reg.No. 20,147
Suite 1400
900 Second Avenue South
Minneapolis, Minnesota 55402-3319
Phone: (612) 334-3222 Fax: (612) 334-3312

NEW:rkp